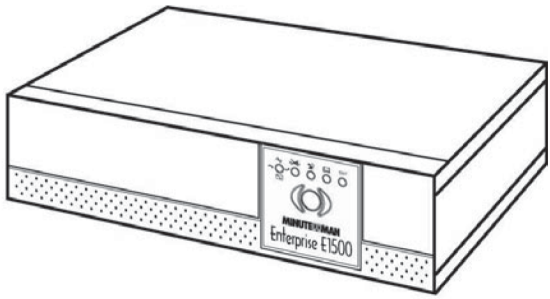
MINUTEMAN®

Enterprise Series

Owner's Manual



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1 INTRODUCTION

Thank you for purchasing a MINUTEMAN power protection product. It has been designed and manufactured to provide many years of trouble free service.

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS !

Please read the manual before installing your Enterprise Series UPS. It provides the information that should be followed during installation and maintenance of the UPS and the batteries allowing you to correctly set up your system for the maximum safety and performance.

Included is information on customer support and factory service if it is required. If you experience a problem with the UPS please refer to the Troubleshooting guide in this manual to correct the problem or collect enough information so that the MINUTEMAN Technical Support Department can rapidly assist you.

NOTICE: This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules and the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference of the Canadian Department of Communications. These limits are designed to provide reasonable protection against such interference in a residential installation. This equipment generates and uses radio frequency and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, this equipment may cause interference to radio and television reception. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna
- Relocate the computer with respect to the receiver
- Move the computer away from the receiver
- Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.
- Shielded communications interface cables must be used with this product

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Receiving Inspection

After removing your MINUTEMAN UPS from it's carton, it should be inspected for damage that may have occurred in shipping. Immediately notify the carrier and place of purchase if any damage is found. Warranty claims for damage caused by the carrier will not be honored.

The packing materials that your UPS was shipped in, are carefully designed to minimize any shipping damage. In the unlikely case that the UPS needs to be returned to MINUTEMAN, please use the original packing material. Since MINUTEMAN is not responsible for shipping damage incurred when the system is returned, the original packing material is inexpensive insurance.

PLEASE SAVE THE PACKING MATERIALS!

WARNING: RISK OF ELECTRICAL SHOCK. HAZARDOUS LIVE PARTS INSIDE THIS POWER SUPPLY ARE ENERGIZED FROM THE BATTERY EVEN WHEN THE AC INPUT POWER IS DISCONNECTED.

TO DE-ENERGIZE THE OUTPUTS OF THE UPS:
1. IF THE UPS IS ON PRESS THE ON/OFF BUTTON FOR 1 SECOND
2. DISCONNECT THE UPS FROM THE AC POWER OUTLET
3. TO DEENERGIZE THE UPS COMPLETELY, DISCONNECT THE BATTERY. (see section 6 for instructions)

CAUTION! TO REDUCE THE RISK OF ELECTRICAL SHOCK IN CONDITIONS WHERE LOAD EQUIPMENT GROUNDING CANNOT BE VERIFIED, DISCONNECT THE UPS FROM THE AC POWER OUTLET BEFORE INSTALLING A COMPUTER INTERFACE CABLE. RECONNECT THE POWER CORD ONLY AFTER ALL SIGNALING CONNECTIONS ARE MADE.

CAUTION! CONNECT THE UPS TO A TWO POLE, THREE WIRE GROUNDING AC POWER OUTLET. THE RECEPTACLE MUST BE CONNECTED TO APPROPRIATE BRANCH PROTECTION (CIRCUIT BREAKER OR FUSE). CONNECTION TO ANY OTHER TYPE OF RECEPTACLE MAY RESULT IN A SHOCK HAZARD AND VIOLATE LOCAL ELECTRICAL CODES

Para Systems Life Support Policy

As a general policy, Para Systems Inc. (Para Systems) does not recommend the use of any of its products in life support applications where failure or malfunction of the Para Systems product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness. Para Systems does not recommend the use of any of its products in direct patient care. Para Systems will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to Para Systems that (a) the risks of injury or damage have been minimized, (b) the customer assumes all such risks, and (c) the liability of Para Systems Inc. is adequately protected under the circumstances.

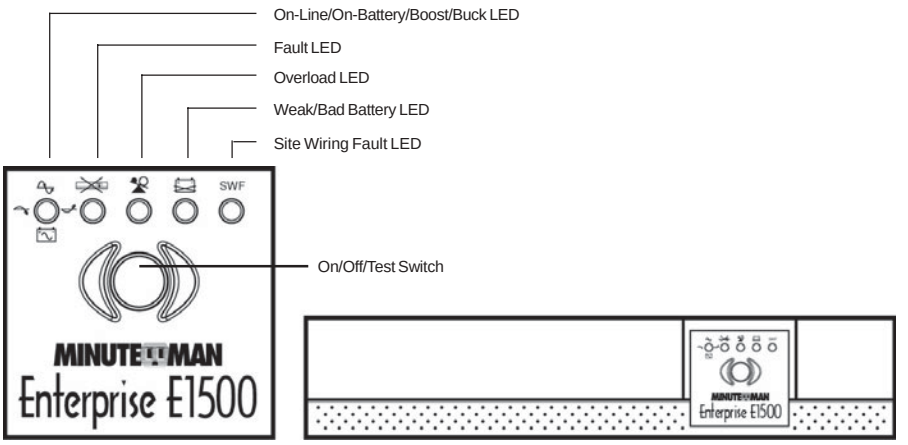
Examples of devices considered to be life support devices are neonatal oxygen analyzers, nerve stimulators (whether used for anesthesia, pain relief, or other purposes), auto transfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, neonatal ventilator incubators, ventilators for both adults and infants, anesthesia ventilators, and infusion pumps as well as any other devices designated as “critical” by the United States FDA.

Hospital grade wiring devices and leakage current may be ordered as options on many PARA SYSTEMS UPS systems. PARA SYSTEMS does not claim that units with this modification are certified or listed as Hospital Grade by PARA SYSTEMS or any other organization. Therefore, these units do not meet the requirements for use in direct patient care.

English

2 CONTROLS AND INDICATORS

FRONT PANEL



Press and release the ON/OFF/TEST button after one beep to turn the unit ON or OFF (see section 4)

On-Line On-Battery Buck Boost

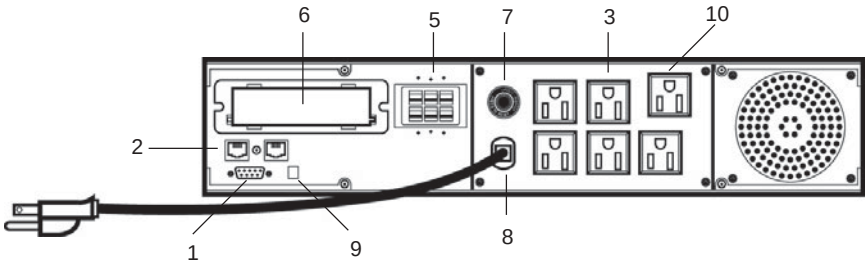
The On-Line/On-Battery/Boost and Buck (green) LED illuminates in a steady state when the UPS is on and supplying AC power to the load. The LED blinks and the audible alarm sounds, when supplying battery power to the load.

The Fault (red) LED illuminates when the UPS has detected an internal fault. (see section 5)

The Overload (yellow) LED illuminates when the loads connected to the UPS exceeds the UPS power rating. (see section 5)

The Weak/Bad Battery (red) LED illuminates when the UPS has detected that the batteries are Weak/Bad. Battery replacement might be required. (see section 5)

SWF The Site Wiring Fault (red) LED illuminates when the UPS detects a improperly wired AC outlet. (see section 5)



REAR PANEL (120Vac models shown)

1. The computer interface port is for the UPS monitoring and control. (see section 3)
2. The RJ-45/RJ-11 modular connectors are used for 10 Base-T network/single line telephone surge protection. (see section 3)
3. The output receptacles are NEMA 5-15R type. (IEC output sockets on 230Vac models)
4. The output circuit breakers will trip in the event the individual banks of the output receptacles exceed the rating of the circuit breaker (Not on all models).
5. The external battery connector is for connecting an external Battery Pack.
6. The access panel is for option cards available from MINUTEMAN.
7. The input circuit breaker will trip in the event the load exceeds the UPS's power rating.
8. The input power cord has a NEMA 5-15P connector. (IEC input socket on 230Vac models)
9. The DIP Switch setting may be changed by the user to set the desired inverter (on battery) output voltage. (see section 4)
10. The **"Surge Only"** output receptacle is for surge protection only **it is not battery backed-up.**

3 INSTALLATION

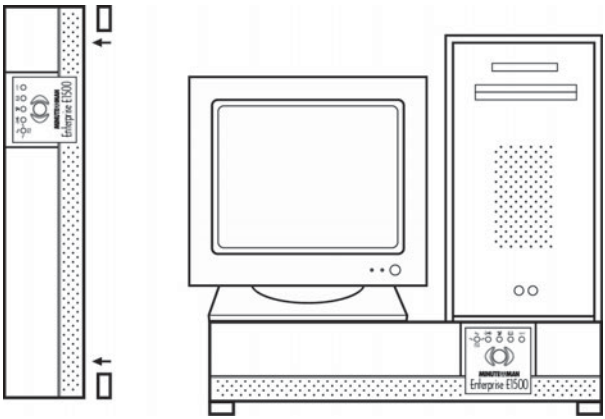
INSTALLATION PLACEMENT

Install the UPS in a temperature controlled environment that is free of conductive contaminants. Select a location which will provide good air circulation for the UPS at all times. Avoid locations near heating devices, water or excessive humidity, or where the UPS is exposed to direct sunlight. Route power cords so they cannot be walked on or damaged.

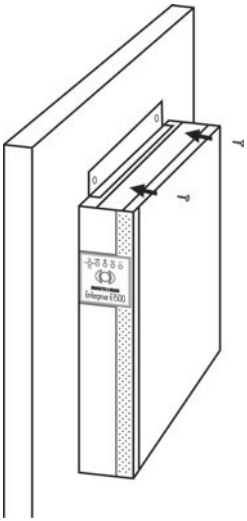
INSTALLATION

Be sure to read the installation placement and all the cautions before installing the UPS. The Enterprise series UPS has external Battery Pack capability, please observe the following warning when connecting the Battery Pack(s). **WARNING!** DO NOT PLUG THE BATTERY PACK'S POWER CORD INTO THE UPS's OUTPUT RECEPTACLES, DAMAGE TO THE BATTERY PACK'S INTERNAL CHARGER MAY OCCUR. **NOTE:** The red connector is the battery positive(+) and the black connector is the battery negative(-) on all MINUTEMAN configurations. The Enterprise series UPSs can be installed in four different configurations.

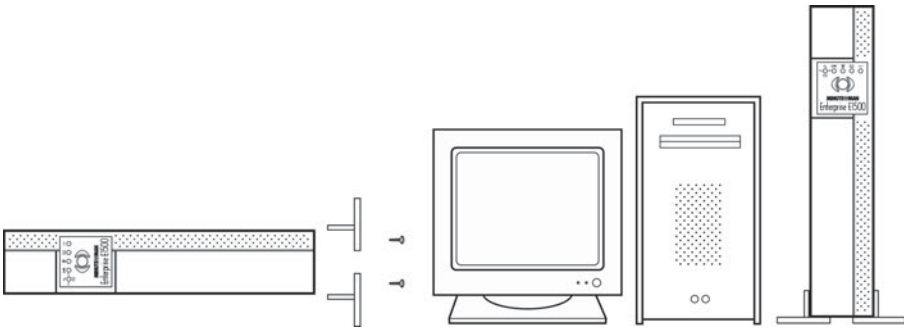
The Desk Top Configuration allows the user to install the monitor, the computer and the UPS in one single stack. There are four self-stick rubber feet provided with UPS. The four rubber feet can be installed on the bottom side of the UPS. Use **CAUTION,** the UPS is extremely heavy. Once the location of the UPS has been determined, stand the UPS on it's side. Attach the self-stick rubber feet to the bottom of the UPS, approximately 2" from each corner. Lay the UPS down on the four rubber feet. Stack the computer and then the monitor on top of the UPS. **NOTE:** Do not stack the UPS on top of the computer. The UPS is heavy and may damage the other equipment. Now the UPS is ready for the normal start-up procedure.



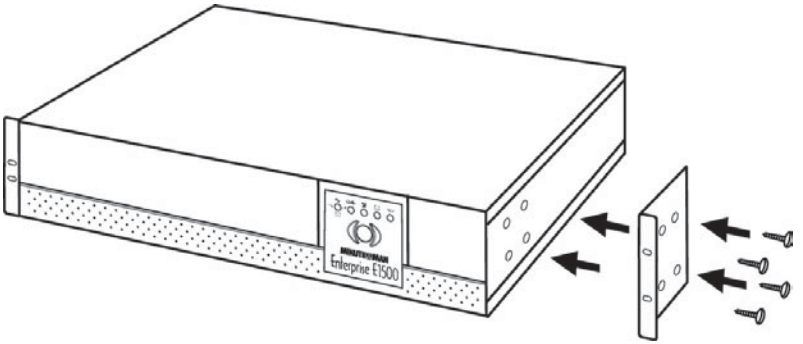
The Wall Mount Configuration allows the user to mount the UPS on the wall. There is a wall mount bracket kit available for the UPS. The kit includes two mounting brackets, twelve retaining screws, four bolts, one drill bit and the template for the bolt holes. Use **CAUTION,** the UPS is extremely heavy. The UPS's side panels have mounting bracket screw holes for attaching the wall mounting brackets. Once the location and position of the UPS has been determined, lay the UPS down flat. Align the mounting bracket with the mounting bracket screw holes and attach with the retaining screws. Use the template to mark the bolt hole position on the wall. **CAUTION,** you should always were protective gear for your hands and eyes when operating power tools. Drill the holes for the bolts and make sure that all of the holes are drilled into structural material. Then clean the area of any loose material. Install the four bolts into the bolt holes. Do not tighten the bolts all the way, leave approximately 3/8" of the bolt sticking out. Position the UPS, so that the mounting bracket keyed holes line up with the four bolts. Slide the UPS down until its resting securely on the four bolts. Tighten the four bolts to secure the UPS to the wall. The face plate can be rotated to read in the up-right position. Pull the front panel off the UPS. On the backside of the front panel, there are four tabs holding the face plate to the front panel. Push the four tabs inward and the face plate will pop out. Position the face plate so that it reads in the up-right position. Install the front panel on the UPS. Now the UPS is ready for the normal start-up procedure.



The Tower Configuration allows the user to install the UPS in the up-right position next to the tower computer. There is a tower bracket kit available for the UPS. Use **CAUTION,** the UPS is extremely heavy. Once the location of the UPS has been determined, lay the UPS down flat on a desk or a table. Position the UPS so that the tower brackets will slide on the unit. Locate the mounting bracket screw holes on the side panel of the unit, there are four mounting bracket screw holes at the front of the unit and four at the rear of the unit. Align the brackets with the mounting bracket screw holes and attach with the retaining screws. Stand the UPS up on the tower brackets. Slide the UPS and the tower computer together. **NOTE:** Verify that the UPS is stable. The face plate can be rotated to read in the up-right position. Pull the front panel off the UPS. On the backside of the front panel, there are four tabs holding the face plate to the front panel. Push the four tabs inward and the face plate will pop out. Position the face plate so that it reads in the up-right position. Reinstall the front panel on the UPS. Now the UPS is ready for the normal start-up procedure.



The Rackmount Configuration comes with mounting brackets for the standard 19" (46.5cm) rack. The mounting brackets to fit a 23" (59.2cm) standard rack are also available. The screws for mounting the UPS to the rack are not included (screw size varies with rack size). The kit includes, two mounting brackets and eight retaining screws. Locate the mounting bracket screw holes on the side panels of the UPS, at the front of the UPS. Align the mounting bracket with the mounting bracket screw holes. Attach the mounting bracket with the retaining screws. **WARNING:** Use two or more people when installing the UPS into the rack. Use caution, the UPS is extremely heavy. Do not move the rack after the units have been installed. The rack maybe unstable due to the weight distribution. Now the UPS is ready for the normal start-up procedure.



CONNECTING TO AN AC SOURCE

Plug the UPS into a two pole, three wire, grounded receptacle only. Do not use extension cords or adapter plugs.

COMPUTER INTERFACE CONNECTION (OPTIONAL)

MINUTEMAN Power Management software and interface cables kits can be used with the Enterprise units. Use only MINUTEMAN or MINUTEMAN approved interface cables with these UPS's. Connect the interface cable to the 9 pin computer interface port on the rear of the UPS. Secure the connector to the UPS via the screws on the connector housing. Connect the other end of the cable to the device that will be monitoring/controlling the UPS.

NOTE: CONNECTING TO THE COMPUTER INTERFACE PORT IS OPTIONAL. THE UPS WORKS PROPERLY WITHOUT A CONNECTION.

TELEPHONE/NETWORK SURGE PROTECTION CONNECTION (OPTIONAL)

Connect a single line telephone or a 10 Base-T network line to the protection sockets on the rear of the UPS. This connection will require another length of telephone or network cable. The cable coming from the telephone service or networked system is connected to the port marked “IN”. The “OUT port is connected to the equipment to be protected.

NOTE: CONNECTING TO THE TELEPHONE/NETWORK SURGE PROTECTION CONNECTION IS OPTIONAL. THE UPS WORKS PROPERLY WITHOUT A CONNECTION.

CHECKING THE SITE WIRING FAULT (120Vac models only)

After plugging in the UPS, check the Site Wiring Fault (SWF) LED on the front panel of the unit. If the LED is illuminated the UPS is plugged into an improperly wired AC outlet.

CAUTION! **IF THE UPS INDICATES A SITE WIRING FAULT, HAVE A QUALIFIED ELECTRICIAN CORRECT THE PROBLEM.**

CHARGING THE BATTERY

The Enterprise Series UPS will charge the internal batteries whenever the unit is connected to an AC source and the circuit breaker on the back panel is in the "On" position. It is recommended that the UPS's batteries be charged for a minimum of 4 hours before use. The UPS may be used immediately, however, the “on battery” run time may be less than normally expected.

CONNECTING YOUR EQUIPMENT

Plug the equipment into the output receptacles on the back panel of the unit. Insure that you do not exceed the maximum output rating of the UPS (refer to the UPS's back panel or the Electrical Specifications in this manual).

CAUTION! **DO NOT CONNECT A LASER PRINTER TO THE BATTERY BACKUP RECEPTACLES ON THE UPS UNLESS THE UPS IS RATED 2000VA OR GREATER. A LASER PRINTER DRAWS SIGNIFICANTLY MORE POWER WHEN PRINTING THAN AT IDLE, AND MAY OVERLOAD THE UPS.**

4 OPERATION

TURNING THE UNIT ON/OFF

ON / OFF / Test Switch

Press and release the ON/OFF/TEST SWITCH. After one beep the unit will turn on and supply power to the load. The load is immediately powered while the UPS runs a 5 second self test. Press and release the switch to turn the unit off. The UPS will continue to charge the batteries whenever it is plugged in and there is AC present.

SELF TEST

ON / OFF / Test Switch

The self test feature is useful to verify the correct operation of the UPS and the condition of the batteries. With the UPS plugged into normal AC press and hold the ON/OFF/TEST SWITCH for 4 seconds (two beeps) then release the switch. The UPS will perform a five second self test. **Note: The UPS will automatically perform a self test on startup and every two weeks.** During the self test the UPS will switch to battery power and the On-Line LED will blink and the audible alarm will sound as well. The length of the test that is automatically performed every two weeks is longer than the start-up or user invoked test. This test will run for approximately fifteen seconds to measure the battery’s capability to provide an acceptable amount of runtime. If the UPS fails a self test one of the LEDs will remain illuminated indicating the type of problem. (see section 5 Troubleshooting)

DIP SWITCH SETTINGS

The DIP Switch setting may be changed by the user to set the desired inverter (on battery) output voltage. The DIP Switch must be set to the desired output voltage and then the unit must be turned OFF and restarted to reconfigure the microprocessor and save the change. The setting for the 117Vac units may be 108Vac, 113Vac, or 117Vac. This setting will adjust the inverter (on battery) output voltage only. The setting for the 225Vac units maybe 215Vac, 225Vac, and 235Vac. All 208Vac applications should be set on 215Vac setting.

Switch #1	Switch #2	Output Voltage in battery mode
OFF	OFF	108Vac (215Vac)
OFF	ON	108Vac (215Vac)
ON	OFF	113Vac (225Vac)
ON	ON	117Vac (235Vac)

ALARMS

ON BATTERY

When the UPS is operating on the batteries, the On-Line LED will blink and the audible alarm will sound every 10 seconds. The alarm will stop once the UPS returns to On-Line operation.

UPS FAULT

When the UPS detects a hardware fault, the Fault LED will illuminate and the UPS will emit a sustained tone. The fault condition can be reset by turning the UPS OFF and then ON. (see section 5 Troubleshooting)

OVERLOAD

When the amount of load attached to the UPS exceeds its power rating, the Overload LED will illuminate and the UPS will emit a sustained tone. This alarm will remain on until the excess load is removed or the UPS's self protection circuit shuts the UPS down.

REPLACE BATTERY

The UPS automatically tests the battery's condition and will illuminate the Weak/Bad Battery LED and emit a short beep. This tone will be repeated every hour until the batteries passes a self test. It is recommended that the UPS be allowed to charge overnight before performing a battery test to confirm a Weak/Bad Battery condition.

LOW BATTERY WARNING

The UPS will emit two consecutive beeps every five seconds when the battery reserve runs low. This continues until AC returns or the UPS shuts down from battery exhaustion.

COMMUNICATIONS PORT

The communications port is a standard DB9 female with both RS232 and simulated contact closure capability. The Enterprise series units will poll the port and activate the port for RS232 or contact closure in accordance with the type of cable it finds connected to the port. To change the port configuration requires the unit be turned off and restarted with the desired cable connected. The pinout for the port is depicted per the chart below.

Pin 1: Instant off (pull and hold this pin low to turn off output receptacles)
Pin 2: /TXD
Pin 3: /RXD and receive ups shutdown command
Pin 4: Simulated contact closure AC fail, NO
Pin 5: Ground
Pin 6: Simulated contact closure low battery warning, NO
Pin 7: Simulated contact closure AC fail, NC
Pin 8: AC fail signal (high to low signal)
Pin 9: Not Used

5 TROUBLESHOOTING

Symptom	Possible Cause	What To Do
UPS will not turn on	On / Off / Test button not pushed	Press the On button momentarily, (one beep) to start UPS
UPS operates in battery mode only, even though there is normal AC present	Input AC circuit breaker is tripped	Reset circuit breaker by pressing the plunger back in. If the AC circuit breaker trips after UPS starts up, reduce the load on the UPS
Fault LED is illuminated	UPS has detected an internal fault	Call for service
The Site Wiring Fault LED is illuminated	Incorrect service wiring	Have a qualified electrician correct the service wiring
The On-line/On-Battery LED is illuminated, but there is no output	The UPS is being controlled via its computer port	Disconnect the computer cable from the UPS and press the On button momentarily. If UPS works normally, software has control of the UPS
UPS does not provide expected backup time with internal batteries or with a Battery Pack	The batteries may be weak or at the end of useful service life. The Battery Pack's circuit breaker maybe tripped	Charge the batteries for 8 hours and retest. If the backup time is still less than expected, the batteries may need to be replaced, even though the Weak/Bad Battery LED is not illuminated. Reset the Battery Pack's circuit breaker
Weak/Bad Battery LED is illuminated	Weak or bad batteries/bad battery connection	Check battery connection/replace batteries. Follow battery replacement procedures in section 6
UPS occasionally emits a beep	Normal operation	The UPS is performing its intended function
Battery Pack does not charge	DC circuit breaker tripped. The Battery Pack's internal fuse is blown	Reset the DC circuit breaker. Call for service
Overload LED is illuminated and a constant alarm	The load has exceeded the UPS's capacity	Check the specifications (see section 8). Remove part of the load
The On-Line LED is blinking and the audible alarm is silent	The UPS is in either the Buck mode or the Boost mode	The UPS is performimg its intended function

6 REPLACING THE BATTERY

REPLACING THE BATTERY

The Enterprise Series UPS has an easy to replace hot-swappable battery(s). Please read the following warning statements before attempting to service the battery(s). NOTE: If there is a power interruption while replacing the hot-swappable batteries, with the UPS on, the load will not be backed up.

WARNING! THIS UNINTERRUPTIBLE POWER SOURCE CONTAINS POTENTIALLY HAZARDOUS VOLTAGES. DO NOT ATTEMPT TO DISASSEMBLE THE UNIT BEYOND BATTERY REPLACEMENT PROCEDURES BELOW. EXCEPT FOR THE BATTERY, THIS UPS CONTAINS NO USER SERVICABLE PARTS. REPAIRS CAN BE PERFORMED BY MINUTEMAN SERVICE PERSONNEL ONLY

CAUTION: DO NOT OPEN OR MUTILATE BATTERIES. RELEASED ELECTROLYTE IS HARMFUL TO THE SKIN AND EYES AND MAY BE TOXIC

CAUTION: DO NOT DISPOSE OF BATTERIES IN A FIRE. THE BATTERIES MAY EXPLODE.

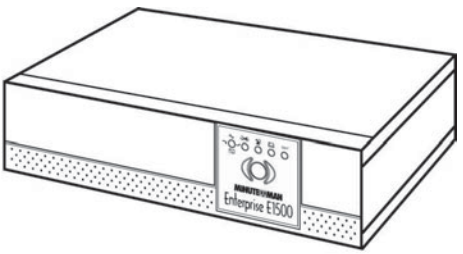
THE BATTERIES IN THIS UPS ARE RECYCLABLE. DISPOSE OF THE BATTERIES PROPERLY. THE BATTERIES CONTAIN LEAD AND POSE A HAZARD TO THE ENVIRONMENT AND HUMAN HEALTH IF NOT DISPOSED OF PROPERLY. REFER TO LOCAL CODES FOR PROPER DISPOSAL REQUIREMENTS OR RETURN THE BATTERY TO MINUTEMAN.

CAUTION: ALTHOUGH BATTERY SYSTEM VOLTAGES ARE ONLY 24 VDC AND 48 VDC. THE BATTERY SYSTEM CAN STILL PRESENT A RISK OF ELECTRICAL SHOCK. THE CURRENT CAPABILITY OF A BATTERY IS SUFFICENT TO BURN WIRE OR TOOLS VERY RAPIDLY, PRODUCING MOLTEN METAL. OBSERVE THESE PRECAUTIONS WHEN REPLACING THE BATTERIES:

1. REMOVE WATCHES, RINGS, OR OTHER METAL OBJECTS
2. USE HAND TOOLS WITH INSULATED HANDLES
3. DO NOT LAY TOOLS OR OTHER METAL PARTS ON TOP OF BATTERIES

CAUTION: REPLACE BATTERIES WITH THE SAME NUMBER AND TYPE AS ORIGINALLY INSTALLED IN THE UPS. THESE BATTERIES HAVE PRESSURE OPERATED VENTS.

Enterprise Model #	Battery Model #
E500 & 500i	12V4.5Ah
E750 & 750i	12V7.2Ah
E1100 & 1100i	12V4.5Ah
E1500 & 1500i	12V7.2Ah
E2300 & 2300i	12V12Ah
E3200 & 3200i	12V12Ah



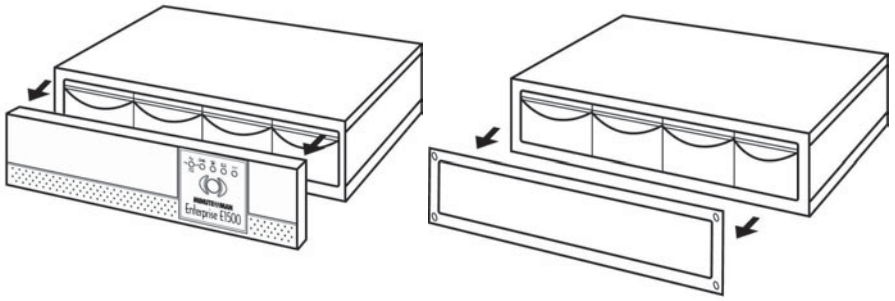
BATTERY REPLACEMENT PROCEDURE

PLEASE READ THE CAUTIONS BEFORE ATTEMPTING TO REPLACE THE BATTERIES

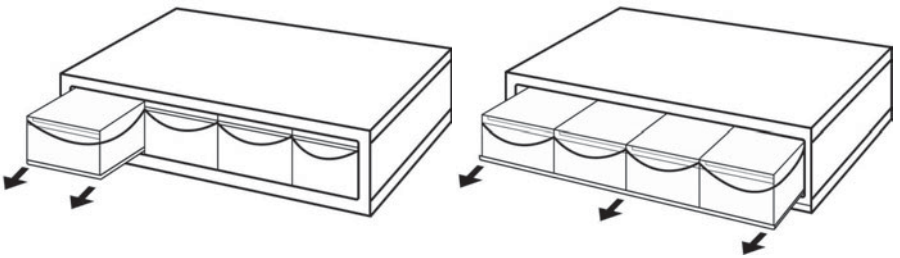
Hot-swappable batteries means that the batteries can be replaced without powering down the whole UPS system. **NOTE:** If there is a power interruption while replacing the hot-swappable batteries, with the UPS on, the load will not be backed up.

NOTE: To Hot-Swap, skip to step number 6.

1. Turn off the equipment that is plugged into the output receptacles of the UPS.
2. Press and release, after one beep, the ON/OFF button on the front panel.
3. Turn off the AC circuit breaker on the rear panel of the UPS.
4. Unplug the UPS's AC power cord from the AC outlet.
5. Unplug the equipment from the output receptacles of the UPS.
6. Remove the front panel of the UPS.
7. Remove the four retaining screws and the battery retaining bracket.



8. Using the pull tab, pull the battery out (on the left hand side looking from the front). Do not pull the batteries out by pulling the battery jumper wires.
9. Disconnect the positive (red) wire from the battery positve terminal.
10. Remove the rest of the batteries, disconnect the battery jumper wires and the battery negative (black) wire from the battery negative terminal.
11. Reconnect the battery negative (black) wire to the battery negative terminal and the battery jumper wires. Verify proper polarity, negative (black) wire to the battery negative terminal and the battery jumper wires are connected properly.
12. Reinstall the batteries into the UPS, except for the battery on the left hand side of the UPS. Reconnect the battery positive (red) wire to the battery positive terminal. Some sparking may occur, this is normal. Verify proper polarity, reinstall the battery into the UPS.
13. Reinstall the battery retaining bracket and the retaining screws.
14. Reinstall the front panel of the UPS.
15. Dispose of the batteries properly at an appropriate recycling facility or return them to the supplier in the packing material for the new batteries.
16. The UPS is now ready for the normal start-up procedure.



7 OBTAINING SERVICE

IF THE UPS REQUIRES SERVICE

1.Use the **TROUBLESHOOTING** section to eliminate obvious causes.

2.Verify there are no circuit breakers tripped. A tripped circuit breaker is the most common problem.

3.Call your dealer for assistance. If you cannot reach your dealer, or if they cannot resolve the problem call or fax MINUTEMAN Technical Support at the following numbers; Voice phone (972) 446-7363, FAX line (972) 446-9011 or visit our Web site at www.minutemanups.com the "Discussion Board". Please have the following information available BEFORE calling the Technical Support Department.

A. Your Name and address.
B. Where and when the unit was purchased.
C. All of the model information on the rear panel of your UPS.
D. Any information on the failure, including LEDs that maybe illuminated.
E. A description of the protected equipment, including model numbers if possible.
F. A technician will ask you for the above information and, if possible, help solve your problem over the phone. In the event that the unit requires factory service, the technician will issue you a Return Material Authorization Number (RMA #).
G. If the UPS is under warranty, the repairs will be done at no charge. If not, there will be a charge for repair.

4. Pack the UPS in its original packaging. If the original packaging is no longer available, ask the Technical Support Technician about obtaining a new set. It is important to pack the UPS properly in order to avoid damage in transit. Never use Styrofoam beads for a packing material.

A. Include a letter with your name, address, day time phone number, RMA number, a copy of your original sales receipt, and a brief description of the problem.

5. Mark the RMA # on the outside of all packages. The factory cannot accept any package without the RMA # marked on the outside.

6. Return the UPS by insured, prepaid carrier to:

MINUTEMAN, Para Systems Inc.
1455 LeMay Drive
Carrollton, Tx. 75007
ATTN: Rma # _____

8 SPECIFICATIONS

NOTE: 230Vac Specs Shown In ( )	500VA	750VA	1100VA	1500VA	2300VA	3200 VA
Acceptable input voltage	0 - 164 (0 - 290) Vac					
Input voltage (on-line operation)	75 - 164 (150 - 290) Vac					
Output voltage	105 - 128 (210 - 250) Vac					
Nominal input frequency	50 or 60 Hz, autosensing					
Input protection	Resettable circuit breaker					
Frequency limits (on-line operation)	50 or 60 Hz, +/-6Hz					
Transfer time	<2 ms typical					
Maximum load	500VA 300W	750VA 450W	1100VA 660W	1500VA 900W	2300VA 1380W	3200VA 1920W
On-battery output voltage	Default 117 (225) Vac / User selectable at 108,113.117 (215,225,235) Vac					
On-battery frequency	50 or 60 Hz, +/-.5 Hz, unless synchronized to utility during brownout					
On-battery waveshape	True Sine Wave					
Protection	Overcurrent and short circuit protected, latching shutdown on overload					
Surge energy rating (one time, 10/1000 us waveform)	500 J (440J)				500 J (440J)	
Surge current capability (one time, 8/20 us waveform)	6.5 kAmps total				13 kAmps total	
Surge response time	0 ns (instantaneous) normal mode; <5 ns common mode					
Surge voltage let-through (percentage of applied ANSI C62.41 Cat. A +/-6kV test waveform)	<5%				<0.5%	
Noise filter	Normal and common mode EMI/RFI suppression					
Battery Type-Spill proof, maintenance free, user replaceable, sealed lead-acid	Two 12 V 4.5 Ah	Two 12 V 7.2 Ah	Four 12 V 4.5 Ah	Four 12 V 7.2 Ah	Four 12 V 12 Ah	Four 12 V 12 Ah
Typical battery life	3 to 6 years, depending on the number of discharge cycles and ambient temp.					
Typical recharge time	2 to 5 hours from total discharge					
10 Base-T surge protection let-through (as a percentage of an applied +/-6 kV 1.2/50 us, 500	<5%					
Telephone line surge protection let-through (as a percentage of an applied +/-6 kV 1.2/50 us, 500 a 8/20 us test)	<1%					
Operating temperature	0 to 40 degrees C (+32 to 104 degrees F)					
Storage temperature	-15 to +45 degrees C (+5 to +113 degrees F)					
Operating and storage relative humidity	0 to 95%, non-condensing					
Operating elevation	0 to +3,000 m (0 to + 10,000 ft)					
Storage elevation	0 to +15,000 m (0 to +50,000 ft)					
Electromagnetic immunity	IEC 801-2 level IV, 801-4 level IV, 801 -5 level III					
Audible noise at 1 m (3 ft.)	<45 dBA					
Size (H x W x D) in Rackmount and Desktop Configuration	3.5 x 17 x 16" (8.9 x 43.2 x 40.7) cm				5.25 x 17 x 16" (13.4 x 43.2 x 40.7) cm	
Weight - Net (Shipping)	43(49)lb 19.5(22)Kg	52(58)lb 23.5(26)Kg	57(62)lb 25.5(28)Kg	74(80)lb 33.5(36)Kg	88(94)lb 40(42.5)Kg	95(101)lb 43(45.5)Kg
Safety and approvals	UL1778, CSA 22.1, CE EMC, CE SAFETY, TUV					
EMC Verification	FCC Class B certified					

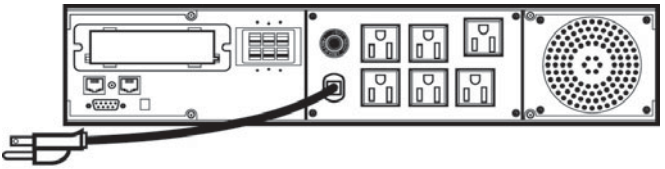
9 CONFIGURABLE PARAMETERS AND SETTINGS

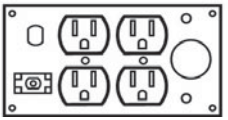
(These items require optional software or hardware)

FUNCTION	FACTORY DEFAULT	USER CHOICES	DESCRIPTION
UPS ID	Enterprise Series	Up to 64 characters to define the UPS	Use this function to uniquely identify the UPS in your network configuration
Battery install date	Date of manufacture	Date of battery replacement - day/month/year XX/XX/XXXX	Enter the current date when replacing batteries
Battery life in days	1826	Up to 5 characters	At first battery replacement, reset to reflect actual number of days experience in your environment or leave factory default.
Enable/ Disable auto restart	Enabled	Enable or disable	When enabled, the UPS will automatically restart from a low battery shutdown when normal AC returns
Set audible alarm state	Enabled	Enabled, at low battery, disabled	Enabled - the UPS will emit a short beep when in the battery mode. At Low Battery the UPS will emit two tones from low battery warning until shutdown. Disabled - Use only when software is controlling the UPS or to silence the alarm
Shutdown Type	UPS output	UPS output or UPS	UPS Output - When the UPS is told to shut down, it turns off the UPS output only. UPS - Turns off the UPS which requires the UPS to be turned on manually
Set inverter output voltage	117Vac (225)Vac	108, 113, 117Vac (215, 225, 235)Vac	changes output voltage during battery mode operations

Customized Output Receptacle Panels

The Enterprise series UPS has a removable receptacle panel. The receptacle panel can be configured with one locking receptacle and two duplex receptacles. This will allow the user to customize the output receptacles for their specific applications. MINUTEMAN will only use UL or CE approved receptacles. Here is one example that could be used: one L530R, one 5-15R duplex and one 5-20R duplex. To customize your MINUTEMAN UPS for your specific application, contact your local distributor or contact MINUTEMAN at 972-446-7363 to find out which opitions are available. Come visit our web site at www.minuteman-ups.com to find out about all the Power Protection products available from MINUTEMAN.





LIMITED PRODUCT WARRANTY

LIMITED PRODUCT WARRANTY

Para Systems Inc. (Para Systems) warrants this equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of three years from the date of manufacture. For equipment sites within the United States and Canada, this warranty covers repair or replacement of defective equipment at the discretion of Para Systems. Repair will be from the nearest authorized service center. Replacement parts and warranty labor will be borne by Para Systems. For equipment located outside of the United States and Canada, Para Systems only covers faulty parts. Para Systems products repaired or replaced pursuant to this warranty shall be warranted for the unexpired portion of the warranty applying to the original product. This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase.

The warranty shall be void if (a) the equipment is damaged by the customer, is improperly used, is subjected to an adverse operating environment, or is operated outside the limits of its electrical specifications; (b) the equipment is repaired or modified by anyone other than Para Systems or Para Systems-approved personnel; or (c) has been used in a manner contrary to the product's operating manual or other written instructions.

Any technical advice furnished before or after delivery in regard to use or application of Para Systems's equipment is furnished without charge and on the basis that it represents Para Systems's best judgment under the circumstances, but it is used at the recipient's sole risk.

EXCEPT AS PROVIDED HEREIN, PARA SYSTEMS MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation of implied warranties; therefore, the aforesaid limitation(s) may not apply to the purchaser.

EXCEPT AS PROVIDED ABOVE, IN NO EVENT WILL PARA SYSTEMS BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. Specifically, Para Systems is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, cost of substitutes, claims by third parties, or otherwise. The sole and exclusive remedy for breach of any warranty, expressed or implied, concerning Para Systems's products and the only obligation of Para Systems hereunder, shall be the repair or replacement of defective equipment, components, or parts; or, at Para Systems's option, refund of the purchase price or substitution with an equivalent replacement product. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Longer term and F.O.B. job site warranties are available at extra cost. Contact Para Systems (1-972-446-7363) for details.

DECLARATION OF CONFORMITY

Application of Council Directive(s): 89/336/EEC, 7/23/EEC

Standard(s) to which Conformity is declared: EN50091-2, EN60555-2, EN61000-3, EN50091-1

Manufacturer's Name: Para Systems, Inc. (Minuteman Power Supplies)
Manufacturer's Address: 1455 LeMay Drive
Carrollton, Texas 75007 USA

Type of Equipment: Uninterruptible Power Supplies

Model No: E500 (Y), E750 (Y), E1100 (Y), E1500 (Y), E2300 (Y), E3200 (Y)

Year of Manufacture: Beginning May 4, 2000

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s).

Place: Carrollton, Tx USA

Christopher A Wood.
(Signature)

Date: May 4, 2000

Christopher A. Wood
(Full Name)

VP of Engineering
(Position)

Notes:

Rackmount Solutions, Ltd
915 S. Jupiter Road
Garland, TX 75042
www.rackmountsolutions.net
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1-866-207-6631 | Fax: 972-276-6484

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